

# CURRICULUM VITAE

**Dr. Dvora Toledano-Kitai**

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## EDUCATION

- Ph.D. 2000:** *Mathematics*, Haifa University; Direct course for Ph.D.  
Dissertation: "On Some Extremal Problems in Interpolation Theory".
- B.A. 1992:** *Mathematics and Teaching*, Haifa University- Graduated with honours.

## RESEARCH INTERESTS

- Cluster validation
- Application of data mining in practical problems

## ACADEMIC APPOINTMENTS

2012	Head, Teaching and Learning Center, ORT Braude College, Karmiel, Israel.
2010 – present	Senior Lecturer, ORT Braude College, Department of Software Engineering
2008 – 2010	Lecturer, ORT Braude College, Department of Software Engineering
2003-2008	Adjunct Lecturer, Department of Software Engineering and The Department of Mathematics, ORT Braude College, Karmiel, Israel.
1998-2007	Adjunct Lecturer, Department of Computer Science and The Department of Economics, Haifa University, Haifa, Israel.
2004-2005	Lecturer, Department of Mathematics and Computer Science, The College of Sakhnin for Teacher Education, Sakhnin, Israel.
1992-1998	Teaching Assistant, Department of Mathematics, Haifa University, Haifa, Israel.
1992-1998	Research Assistant, School of Education, Haifa University, Haifa, Israel. Member in a development team in "Visualizing Mathematics" project. (A computer oriented inquiry curriculum in mathematics for high school students.

## **PROFESSIONAL EXPERIENCE**

### **TEACHING EXPERIENCE**

#### **ORT Braude College of Engineering:**

##### **Undergraduate Courses:**

Calculus 1  
Advanced Calculus 1 extended (By scale up method, new development)  
Numerical Analysis for Software Engineering  
Numerical Analysis for Mechanical Engineering  
Numerical Analysis for Applied Mathematics ( extended course)  
Ordinary Differential Equations  
Advanced Mathematics ( include: Ordinary Differential Equations, Partial Differential Equations, Infinite and Power Series ,Fourier Series, Laplace and Fourier Transforms )  
Complex Dynamical Systems (By scale up method, new development )  
Discrete Mathematics 2.

#### **Haifa university**

##### **Graduate Courses:**

Calculus 1  
Advanced Calculus 1  
Advanced Calculus 2  
Advanced Linear Algebra 1  
Advanced Linear Algebra 2  
Numerical Analysis for Computer Science  
Topics in Math ( includes topics in advanced calculus & topics in modern algebra )  
Ordinary Differential Equations (T.A)  
Advanced Calculus 3 (T.A)

Advanced Topics in Business Administration – Quality Management in the Hi-Tech Industry (MBA program)  
Methodologies for Information Systems Development

#### **The College of Sakhnin for Teacher Education:**

##### **Undergraduate Courses:**

Calculus 1  
Numerical Analysis

## **ACADEMIC AND PROFESSIONAL AWARDS AND GRANTS**

2011	Excellence Prize, ORT Braude College
2011	Special Contribution Prize, ORT Braude College
2010	Excellence Prize, ORT Braude College
2010	Scholarship for reducing teaching load, ORT Braude College
2009	Excellence of Teaching, ORT Braude College
2007	Excellence of Teaching, ORT Braude College

2006	Award for Excellence in Teaching, Haifa University
2005	Excellence of Teaching, ORT Braude College
2003	Excellence of Teaching, ORT Braude College
1992-2002	Award for Excellence in Teaching, Haifa University

## **PROFESSIONAL ACTIVITIES**

### **ORT Braude College:**

- 2012, Chairman of the College Preparatory Committee, ORT Braude College.
- 2012, Chairman of the Steering Committee, the Teaching & Learning Center.
- 2012, Member of the Committee of advancing and promoting student learning, the Teaching & Learning Center.
- 2012, Member of the Research Committee, the Teaching & Learning Center.
- 2012, Participation in advanced “Coaching” course, ORT Braude College, Israel.
- 2011-Present, Editor, Research Booklet of ORT Braude College: 2009-2011.
- 2011-Present, Coordinator of the self-evaluation process at the Department of Software Engineering & Information systems.
- 2011-2012, Chair of research subcommittee for Reducing Teaching Load, ORT Braude College.
- 2011-Present, Member, departmental lecturer peer-support team.
- 2010-Present, Member of the curriculum committee of the B. Sc. Program in the Department of Software Engineering.
- 2010-Present, Member of the admission committee in the Department of Software Engineering.
- 2010-2012, Member of the curriculum committee of the M. Sc. Program in the Department of Software Engineering.
- 2010-2011, Participation in “Coaching” course, ORT Braude College, Israel.
- 2009-2011, Academic Advisor for First year students in the Software Engineering Department.
- 2009-Present, Academic Advisor for preparatory semester in the Software Engineering Department.
- 2009-2010, Development of a preparatory semester in the Software Engineering Department.
- 2009-2012, member of the college research committee, ORT Braude College.
- 2009-2011, Member of research subcommittee for Reducing Teaching Load, ORT Braude College.
- 2008-2012, Member of the development team of the M. Sc. Program in the Department of Software Engineering.
- 2008-Present, Chair, research committee, Department of Software Engineering
- 2010-2012, Chairman of the Committee of advancing and promoting student learning, The Teaching & Learning Center.
- 2008-2009, Member of the Committee of advancing and promoting student learning, The Teaching & Learning Center.

- 2010-Present, Member of the Steering Committee, the Teaching & Learning Center.
- 2008- Present, Member the Lecturers' peer-evaluation team, The Center for Teaching & Learning.
- Participation in the Workshop on Distance learning of MEDA ETE 2008, Italy
- Participation in the course for Distance learning trainers of MEDA ETE 2007, Israel
- Developing of a new active learning environment for Calculus 1 extended (Lectures planes by active approach, website, Theory book, Exercises with full solutions, Practical lessons planes by active approach and full solutions for assistants, new sets for homework in “Webassign”)
- Developing of the new active learning environment for Complex Dynamical Systems (Lectures planes by active approach, website, Lectures, Exercises with full solutions, Practical lessons planes by active approach and full solutions for assistants)
- Participation in workshops on Distance learning at ORT Braude College 2006-2008

### **Conferences:**

- 2011, Member of the Organizing Committee, “Workshop on Patents and Software Engineering” collocated with the 7th Haifa Verification Conference HVC2011, December 4, 2011, ORT Braude College, Israel.
- 2010-2011, Chair of the Organizing Committee, The 7<sup>th</sup> ORT Braude College Interdisciplinary Research Conference, September 19-20, 2011, Pastoral Kfar Blum Hotel, Upper Galilee, Israel.
- 2012, Member of the Program Committee, “Text Mining 2012”, the 10<sup>th</sup> workshop on text mining 12<sup>th</sup> SIAM International Conference on Data Mining., April 28, 2012, Disney's Paradise, Pier Hotel, Anaheim, CA, USA.
- 2011, Member of the Program Committee, “Text Mining 2011”, the 9<sup>th</sup> workshop on text mining 11<sup>th</sup> SIAM International Conference on Data Mining., April 30, 2011, Hilton Phoenix, Mesa, Arizona, USA.
- 2010, Chair session at “Workshop on Algorithmic Techniques for Data Mining”, June 17, 2010, ORT Braude College, Israel.
- 2009-2010, Member of the organizing committee, “Workshop on Algorithmic Techniques for Data Mining”, June 17, 2010, ORT Braude College, Israel.
- 2009- 2011, Scientific Coordinator in the developing of a mutual project with Deloitte Company.
- 2009-2010, Member in the committee of “Initiatives for Promoting Learning in Higher Education conference”, ORT Braude College.
- 2008-Present, Scientific secretary of the Data Mining Group, Department of Software Engineering.

## LIST OF PUBLICATIONS

### Refereed Papers

1. Z. Volkovich, D. Toledano Kitai and G.-W. Weber, Self-Learning  $k$ -means Clustering: A Global Optimization Approach, *Journal of Global Optimization (JOGO)*, (available online at <http://www.springerlink.com/content/0925-5001/?MUD=MP&k=volkovich>), Online First™, 7 February, 2012.
2. Z. Volkovich, Z. Barzily, G.-W. Weber, D. Toledano-Kitai and R. Avros, An application of the Minimal Spanning Trees Approach to Cluster Stability Problem, *Central European Journal of Operation Research*, 20(1), 119-139, 2012.
3. Z. Volkovich, Z. Barzily, G.-W. Weber, D. Toledano-Kitai and R. Avros, Resampling Approach for Cluster Model Selection, *Machine Learning*, 85 (1-2), 209-248, 2011.
4. Z. Volkovich, Z. Barzily, R. Avros and D. Toledano-Kitai, On Application of a Probabilistic  $K$ -Nearest Neighbours Model for Cluster Validation Problem, *Communications in Statistic*, 40, 2997-3010, 2011.
5. D. Toledano-Kitai, R. Avros and Z. Volkovich, A Fractal Dimension Standpoint to the Cluster Validation Problem, *International Journal of Pure and Applied Mathematics*, 20 (2), 187-202, 2011.
6. Z. Volkovich, D. Toledano-Kitai and R. Avros, On analytical properties of generalized convolutions, *Banach Canter Publications, Institute of Mathematics, Polish Academy of Sciences Warszawa*, (invited paper), 90, 243-274, 2010.
7. Z. Volkovich, Z. Barzily, D. Toledano-Kitai and R. Avros, The Hotelling's metric as a cluster stability measure, *Computer Modelling & New Technologies*, 14 (4), 65-72, 2010.
8. D. Toledano, L. Brutman and I. Gopengauz, On the Integral of the Lebesgue Function Induced by Interpolation at the Chebyshev Nodes, *Acta Mathematica Hungarica* 90 ,1-2,11-28, 2001.
9. D. Toledano and L. Brutman, An Extremal Problem of Erdos in Interpolation Theory, *Computers & Mathematics with Applications* 34 ,12, 37-47,1997.

### Accepted for Publication:

1. D. Toledano Kitai and Z. Volkovich, A  $K$ -NN approach for cluster configuration assessment, *Journal of Modern Mathematics Frontier (JMMF)* (Accepted), 2012.
2. D. Toledano-Kitai, R. Avros, Z. Volkovich, G.-W. Weber, and O. Yahalom, Cluster Validation: A Binomial Noised Model, *Journal of Intelligent & Fuzzy Systems; Special Issue: Recent Advances in Intelligent & Fuzzy Systems* (Accepted), 2012.

## **Text Book**

1. *D. Toledano-Kitai, F. Jacobson and D. Shoikhet*, Differential Calculus in One Variable, Magness Press, 2008.

## **Conference Proceedings and Abstracts**

### **Conference Proceedings (Refereed)**

1. *Z. Volkovich, D. Toledano-Kitai and R. Avros*, Distance Learning for Cluster Validation, Stochastic Modelling Techniques and Data Analysis International Conference (SMTDA 2012), Chania Crete Greece, 5 - 8 June 2012.
2. *Z. Volkovich, D. Toledano-Kitai and R. Avros*, On Energy Based Cluster Stability Criterion, Stochastic Modelling Techniques and Data Analysis International Conference (SMTDA 2010), Chania Crete Greece, 8 - 11 June 2010.
3. *Z. Volkovich, Z. Barzily, D. Toledano-Kitai and R. Avros*, Probability metrics standpoint on the cluster stability problem, International Symposium on Stochastic Models in Reliability Engineering, Life Science and Operations Management, Beer Sheva, Israel, February 8-11, 2010.
4. *Z. Volkovich, Z. Barzily, R. Avros and D. Toledano-Kitai*, On application of the  $K$  nearest neighbours approach for cluster validation, The XIII International Conference (ASMDA 2009), Vilnius, 2009.
5. *Z. Volkovich, Z. Barzily, G.-W. Weber and D. Toledano-Kitai*, Cluster Stability Estimation Based on a Minimal Spanning Trees Approach, The Second Global Conference on Power and Optimization (PCO2009), Bali, Indonesia, 2009.

### **Conference Abstracts**

1. *D. Toledano-Kitai, R. Avros, Z. Barzily, Z. Volkovich*, Fractal dimension cluster validation criteria, The 24<sup>th</sup> European Conference on Operational Research, Lisbon, 2010.
2. *Z. Volkovich, Z. Barzily, R. Avros and D. Toledano-Kitai*,  $K$ -Nearest Neighbours' stochastic models in the cluster stability problem, The 23<sup>rd</sup> European Conference on Operational Research, Bonn, 2009.

## **Preprints**

1. *Z. Volkovich, D. Toledano-Kitai and G.-W. Weber*, Self-Learning K-Means Clustering: A Global Optimization Approach, *Institute of Applied Mathematics, Middle East Technical University*, Ankara, Turkey, 2011.
2. *D. Toledano-Kitai, R. Avros, Z. Volkovich, G.-W. Weber and O. Yahalom*, Cluster Validation: A Binomial Noised Model, *Institute of Applied Mathematics, Middle East Technical University*, Ankara, Turkey, 2010.
3. *Z. Volkovich, Z. Barzily, G. -W. Weber, D. Toledano-Kitai and R. Avros*, Resampling Approach for Cluster Model Selection, *Institute of Applied Mathematics, Middle East Technical University*, Ankara, Turkey, 2010.
4. *Z. Volkovich, Z. Barzily, G. -W. Weber, D. Toledano-Kitai and R. Avros*, A Minimal Spanning Trees Approach to Cluster Stability Problem, *Institute of Applied Mathematics, Middle East Technical University*, Ankara, Turkey, 2009.

5. *Z. Volkovich, Z. Barzily, G. –W. Weber and D. Toledano-Kitai, Cluster Stability Estimation Based on a Minimal Spanning Trees Approach, Institute of Applied Mathematics, Middle East Technical University, Ankara, Turkey, 2008*

### **Other Publications**

1. *D. Toledano-Kitai, Lectures in Numerical Analysis for Applied Mathematics Students, ORT Braude College, Karmiel, 1-498, 2010.*
2. *D. Toledano-Kitai, Exercises in Numerical Analysis for Applied Mathematics Students, ORT Braude College, Karmiel, 1-32, 2010.*
3. *D. Toledano-Kitai, Lectures in Numerical Analysis for Software Eng. Students (in English), ORT Braude College, Karmiel, 1-543, 2010.*
4. *D. Toledano-Kitai, Exercises in Numerical Analysis for software eng. Students (in English), ORT Braude College, Karmiel, 1-55, 2010.*
5. *D. Toledano-Kitai, Lectures in Discrete Mathematics 2 for Software Eng. Students, ORT Braude College, Karmiel, 1-217, 2008-2010.*
6. *D. Toledano-Kitai, Exercises in Discrete Mathematics 2 for Software Eng. Students, ORT Braude College, Karmiel, 1-109, 2008-2010.*
7. *D. Toledano-Kitai, F. Jacobson, D. Pundak, Sh. Rosner, How to adopt Active Learning? Al Hagova– Journal on Teaching in Higher Education, Tel-Aviv. 7,3,18-21, 2008*
8. *D. Toledano-Kitai, F. Jacobson and D. Shoikhet, "Weekly Arranged lectures" for students and teachers of the course Calculus 1 extended ORT Braude College, Karmiel, 2007-2008, 1-350.*
9. *D. Toledano-Kitai, F. Jacobson, D. Shoikhet, R. Kerdman, "Weekly Arranged exercises with full solutions" for students of the course Calculus 1 extended ORT Braude College, Karmiel, 1-232, 2007-2008.*
10. *D. Toledano-Kitai, Lectures in Numerical Analysis for CS Students, Haifa University, Haifa, 1-777, 2002-2003.*
11. *D. Toledano-Kitai, Lectures and Exercises in Numerical Analysis for Software Engineering Students, ORT Braude College, Karmiel, 1-692, 2003.*
12. *D. Toledano-Kitai, Lectures and Exercises in Numerical Analysis for Mechanical Engineering Students, ORT Braude College, Karmiel, 1-688, 2005.*
13. *D. Toledano-Kitai, Lectures and Exercises in Ordinary Differential Equations for Electronic and Electrical Engineering Students, ORT Braude College, Karmiel, 1-106, 2007.*
14. *D. Toledano-Kitai, Lectures and Exercises in Partial Differential Equations for Electronic and Electrical Engineering Students, ORT Braude College, Karmiel, 1-121, 2007.*
15. *D. Toledano-Kitai, Lectures and Exercises in Infinite and Power Series for Electronic and Electrical Engineering Students, ORT Braude College, Karmiel, 1-112, 2007.*
16. *D. Toledano-Kitai, Lectures and Exercises in Fourier Series for Electronic and Electrical Engineering Students, ORT Braude College, Karmiel, 1-52, 2007.*

17. *D. Toledano-Kitai*, Lectures and Exercises in Laplace Transforms for Electronic and Electrical Engineering Students, ORT Braude College, Karmiel, 1-47, 2007.
18. *D. Toledano-Kitai*, Lectures and Exercises in Fourier Transforms for Electronic and Electrical Engineering Students, ORT Braude College, Karmiel, 1-23, 2007.
19. *D. Toledano-Kitai, D. Shoikhet*, Lectures and Exercises in Complex Dynamical Systems for Electronic and Electrical Engineering Students, ORT Braude College, Karmiel, 1-132, 2007.
20. *D. Toledano-Kitai, D. Shoikhet*, Lectures and Exercises (in English) in Complex Dynamical Systems for Electronic and Electrical Engineering Students, ORT Braude College, Karmiel, 1-127, 2007.
21. *D. Toledano-Kitai*, Visualizing Mathematics, Functions and algebra: Tools and Basic Concepts, The School of Education, Haifa University, 1993-1995.
22. *D. Toledano-Kitai*, Visualizing Mathematics, Rational Functions, The School of Education, Haifa University, 1993-1995.
23. *D. Toledano-Kitai*, Visualizing Mathematics, The square Function, The School of Education, Haifa University, 1993-1995.
24. *D. Toledano-Kitai*, Visualizing Mathematics, Trigonometric Functions, The School of Education, Haifa University, 1993-1995.
25. *D. Toledano-Kitai*, Visualizing Mathematics, Functions of functions, The School of Education, Haifa University, 1993-1995.
26. *D. Toledano-Kitai*, Visualizing Mathematics, Exponential and Logarithmic Functions, The School of Education, Haifa University, 1993-1995.
27. *D. Toledano-Kitai*, Visualizing Mathematics, Calculus, The School of Education, Haifa University, 1993-1995.
28. *D. Toledano-Kitai*, Visualizing Mathematics, Linear Programming, The School of Education, Haifa University, 1993-1995.